

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please CANCEL claims 6, 25 and 34 AMEND claims 1, 5, 7, 11, 17, 22 and 28 in accordance with the following:

1. (currently amended) A resin evaluation method of an injection molding machine comprising:

setting analysis conditions including an injection velocity and a resin temperature;

performing injections of resin using the injection molding machine on the set analysis conditions; and

obtaining at least one of a degree of resin-temperature dependency of a resin pressure and a degree of velocity or flow-rate dependency of a resin pressure, based on either a relationship between the resin pressure and a screw position or a relationship between the resin pressure and an elapsing time from a start of each of said injections of resin, wherein the degree of resin-temperature dependency of a resin pressure obtains a dependency relation according to an exponential function of the resin temperature and/or the degree of velocity or flow-rate dependency of a resin pressure obtains a dependency relation according to an equation expressing the resin pressure using a power function of the injection velocity or the flow rate of resin.

2. (original) A resin evaluation method for an injection molding machine according to claim 1, wherein the resin pressure is detected by a pressure sensor for detecting resin pressure at a nozzle of the injection molding machine or a pressure sensor for detecting resin pressure applied to the screw.

3. (original) A resin evaluation method for an injection molding machine according to claim 1, wherein the relationship between the resin pressure and the screw position or the elapsing time from a start of each injection are expressed by the resin pressure at set screw positions or the resin pressure at set points in time elapsing from a start of each injection.

4. (original) A resin evaluation method for an injection molding machine according to claim 1, wherein the resin temperature condition is represented by a nozzle temperature or a cylinder temperature.

5. (currently amended) A resin evaluation method of an injection molding machine comprising:

setting analysis conditions including an injection velocity and a resin temperature;

performing injections of resin using the injection molding machine on the set analysis conditions; and

obtaining an interdependency relation of the resin pressure with respect to the resin temperature and an injection velocity or a flow rate of resin, based on either a relationship between the resin pressure and a screw position or a relationship between the resin pressure and an elapsing time from a start of the injections of resin, wherein said interdependency relation is obtained according to an equation expressing the resin pressure using a power function of the injection velocity or the flow rate of resin, and an exponential function of the resin temperature.

6. (cancelled)

7. (currently amended) A resin evaluation method for an injection molding machine according to claim 65, wherein a degree of resin temperature dependency of the resin pressure and a degree of velocity or flow rate dependency of the resin pressure are obtained based on said equation.

8. (original) A resin evaluation method for an injection molding machine according to claim 5, wherein the resin pressure is detected by a pressure sensor for detecting resin pressure at a nozzle of the injection molding machine or a pressure sensor for detecting resin pressure applied to the screw.

9. (original) A resin evaluation method for an injection molding machine according to claim 5, wherein the relationship between the resin pressure and the screw position or the relationship between the resin pressure and the elapsing time from a start of injection are expressed by the resin pressure at set screw positions or the resin pressure at set points in time elapsing from a start of injection.

10. (original) A resin evaluation method for an injection molding machine according to claim 5, wherein the resin temperature condition is represented by a nozzle temperature or a cylinder temperature.

11. (currently amended) A resin evaluation method for an injection molding machine comprising:

performing predetermined times of injections in which the resin temperature is automatically successively altered, and in which the injection velocity is also automatically successively altered in accordance with the successive alterations of the temperature;

detecting an injection pressure in each of the injections;

obtaining data of the injection pressure, the injection velocity and the resin temperature in each of the injections; and

automatically obtaining an interdependency relation of the resin pressure with respect to the resin temperature and the injection velocity or flow rate of resin based on combinations of the data of the injection pressure, the injection velocity and the resin temperature in the injections, wherein said interdependency relation is obtained according to an equation expressing the resin pressure using a power function of the injection velocity or the flow rate of resin, and an exponential function of the resin temperature.

12. (original) A resin evaluation method for an injection molding machine according to claim 11, wherein the screw position and the injection pressure are detected at every predetermined period in each of injections, and the interdependency relation is automatically obtained as a function of the screw position or an elapsing time from a start of each injection.

13. (original) A resin evaluation method for an injection molding machine according to claim 11, wherein the injection pressure is detected at set positions or set points in time elapsing from a start of injection in each of the injections, and the data of the injection pressure, the injection velocity and the resin temperature are obtained in each of the injection.

14. (original) A resin evaluation method for an injection molding machine according to claim 11, wherein said injection comprises an air shot of injecting resin in air without a mold attached to the injection molding machine.

15. (original) A resin evaluation method for an injection molding machine according

to claim 11, wherein the resin pressure is detected by a pressure sensor for detecting resin pressure at a nozzle of the injection molding machine or a pressure sensor for detecting resin pressure applied to the screw.

16. (original) A resin evaluation method for an injection molding machine according to claim 11, wherein the resin temperature condition is represented by a nozzle temperature or a cylinder temperature.

17. (currently amended) A resin evaluation device using an injection molding machine comprising:

setting means for setting analysis conditions including an injection velocity and a resin temperature to evaluate characteristics of resin;

detecting means for detecting a resin pressure at set screw positions or set points in time elapsing from a start of the injections under the set analysis conditions; and

analyzing means for obtaining at least one of a degree of resin temperature dependency of the resin pressure and a degree of the injection velocity or flow rate dependency of the resin pressure based on the detected resin pressure, the injection velocity, and the resin temperature, at one of set screw positions and at set points in time elapsing from a start of injection, wherein said analyzing means obtains a dependency relation according to either an equation expressing the resin pressure using a power function of the injection velocity or the flow rate of resin, and an exponential function of the resin temperature.

18. (original) A resin evaluation device using an injection molding machine according to claim 17, wherein said analyzing means is provided separately from the injection molding machine, and data of screw positions or points in time elapsing from a start of injection, data of resin temperature, data of injection velocity and data of resin pressure obtained in the injections of resin are inputted to said analyzing means.

19. (original) A resin evaluation device using an injection molding machine according to claim 17, wherein said analyzing means is provided separately from the injection molding machine, and the data of injection velocity, the data of resin temperature, the data of detected values of the resin temperature at set screw positions or at set points in time elapsing from a start of injection are inputted to the analyzing means.

20. (original) A resin evaluation device using an injection molding machine according to claim 17, wherein said detecting means includes a pressure sensor provided at a nozzle of the injection molding machine or a pressure sensor for detecting resin pressure applied to the screw.

21. (original) A resin evaluation device using an injection molding machine according to claim 17, wherein the resin temperature condition is represented by a nozzle temperature or a cylinder temperature.

22. (currently amended) A resin evaluation device using an injection molding machine comprising:

setting means for setting analysis conditions including an injection velocity and a resin temperature to evaluate characteristics of resin;

detecting means for detecting resin pressure at set screw positions or set points in time elapsing from a start of the injections under the set conditions; and

analyzing means for obtaining an interdependency relation between the resin pressure with respect to the resin temperature and an injection velocity or a flow rate of resin based on the detected resin pressure, the injection velocity and the resin temperature at one of set screw positions and at set points in time elapsing from a start of each injection, wherein said analyzing means obtains the interdependency relation according to an equation expressing the resin pressure using a power function of the injection velocity or the flow rate of resin, and an exponential function of the resin temperature.

23. (original) A resin evaluation device using an injection molding machine according to claim 22, wherein said analyzing means is provided separately from the injection molding machine, and data of screw positions or points in time elapsing from a start of injection, data of resin temperature, data of injection velocity and data of resin pressure are inputted to said analyzing means.

24. (original) A resin evaluation device using an injection molding machine according to claim 22, wherein said analyzing means is provided separately from the injection molding machine, and the data of injection velocity, the data of resin temperature, the data of detected values of the resin temperature at set screw positions or at set points in time elapsing from a start of injection are inputted to the analysis means.

25. (cancelled)

26. (original) A resin evaluation device using an injection molding machine according to claim 22, wherein said detecting means includes a pressure sensor provided at a nozzle of the injection molding machine or a pressure sensor for detecting resin pressure applied to the screw.

27. (original) A resin evaluation device using an injection molding machine according to claim 22, wherein the resin temperature condition is represented by a nozzle temperature or a cylinder temperature.

28. (currently amended) A resin evaluation device using an injection molding machine comprising:

control means for controlling the injection molding machine to successively perform injections of resin at different injection velocities set for each of set different resin temperatures;

detecting means for detecting a resin pressure in each of the injections;

storing means for storing a set of the resin temperature, an injection velocity and a resin pressure in each of the injections;

analyzing means for analyzing interdependency relation of the resin pressure with respect to the resin temperature and the injection velocity or a flow rate of resin based on data stored in said storing means, wherein said analyzing means obtains the interdependency relation according to an equation expressing the resin pressure using a power function of the injection velocity or the flow rate of resin, and an exponential function of the resin temperature.

29. (original) A resin evaluation device using an injection molding machine according to claim 28, wherein said detecting means detects an injection pressure and the screw position at every predetermined time period in each of the injections, said storing means stores the screw position, and said analyzing means obtains the interdependency relation as a function of the screw position.

30. (previously presented) A resin evaluation device using an injection molding machine according to claim 29, further comprising display means for displaying at least one of the relationship between the injection pressure and the injection velocity or the flow rate of resin,

and the relationship between the injection pressure and the resin pressure as a function of the screw position based on the obtained interdependency relation.

31. (original) A resin evaluation device using an injection molding machine according to claim 28, wherein said detecting means detects the injection pressure at set screw positions or set points in time elapsing from a start of each injection.

32. (previously presented) A resin evaluation device using an injection molding machine according to claim 28, further comprising display means for displaying at least one of the relationship between the injection pressure and the injection velocity or the flow rate of resin, and the relationship between the injection pressure and the resin temperature based on the obtained interdependency relation.

33. (original) An apparatus for evaluating resin for an injection molding machine according to claim 28, further comprising storing means for storing interdependency relation of the resin pressure with respect to the resin temperature and the injection velocity or the flow rate of resin for each kind of resin, and display means for displaying a graph based on the stored interdependency relation for a designated kind of resin.

34. (cancelled)

35. (original) A resin evaluation device using an injection molding machine according to claim 28, wherein said detecting means includes a pressure sensor provided at a nozzle of the injection molding machine or a pressure sensor for detecting resin pressure applied to the screw.

36. (original) A resin evaluation device using an injection molding machine according to claim 28, wherein the resin temperature condition is represented by a nozzle temperature or a cylinder temperature.